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| Name: | Date: |
| Course/Subject: Keystone Algebra II | Team: Math Department |
| Topic: IV Patterns, Relations, Functions | School District: Blue Mountain |

Key Learning: Recognizing patterns, relations, and functions.

Unit Essential Question: How can we analyze data and write equations from any given set of data?

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| Concept: Write and graph functions from data | Concept: Relations/functions | Concept: Quadratic, exponential, polynomial, and logarithmic function graphs |
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| Lesson Essential Questions:   * How can we write and graph functions from data? * What real-world examples model the graph of a linear function? (ET) | Lesson Essential Questions:   * What is the difference between a relation and a function? * What are the various properties of relations and functions? * Explain this sentence: Every function is a relationship, but not every relationship is a function. (ET) | Lesson Essential Questions:   * How do you find the important points of a quadratic, exponential, polynomial or logarithmic graph? * Explain what the discriminate tells you about a quadratic equation. (ET) |
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| Vocabulary:   * linear function * slope * slope intercept * point slope * y intercept | Vocabulary:   * domain * range * inverse * relation * function * composite function | Vocabulary:   * intercepts * zeros * asymptotes * min * max * intervals (increase, decrease) * discriminate |
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| Additional Information/Resources: We will be using the graphing calculator to explore various functions and expression. | | |

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| Concept: Sequences (generic, arithmetic, geometric) | Concept: Series (arithmetic, geometric) | Concept: Problem solve with sequence and series | Concept: | Concept: |
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| Lesson Essential Questions:   * How do we write the terms of a sequence? * How do we differentiate between a generic, arithmetic, and geometric sequence? * Find examples in everyday life that demonstrate famous sequences. (ET) | Lesson Essential Questions:   * How do we find the sum of a series? * How do we differentiate between an arithmetic and geometric series? (ET) | Lesson Essential Questions:   * How do we apply the arithmetic and geometric sequence and series formulas to solve real-world problems? (ET) | Lesson Essential Questions: | Lesson Essential Questions: |
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| Vocabulary:   * generic * arithmetic * geometric * term * index * natural numbers * initial term * constant difference * constant ratio | Vocabulary:   * summation (sigma) | Vocabulary: | Vocabulary: | Vocabulary: |